

mixing a first solvent having a dielectric constant of more than 20 and a second solvent having a viscosity of less than 0.8 cP, the Examples used in Simon et al. are for ratios of 1:1.

In contrast, claim 4 recites, among other features, that "the first solvent is roughly between 20% and 40 % by weight of the electrolyte, and the second solvent is roughly between 80% and about 60 % by weight of the electrolyte."

As also set forth in the enclosed Declaration, an experiment was performed that shows that an electrolyte having the first and second solvents in the recited ratios result in an improvement in both cycle life characteristics and initial discharge capacities as compared to where more than 40% of the first solvent is used as disclosed in the prior art Examples relied upon by the Examiner.

Moreover, as also set forth in the enclosed Declaration, if more than 80 % by volume of the first solvent having the high dielectric constant is used, the discharge capacity abruptly decreases. Additionally, since the first solvent has the high polarity, it is not likely to impregnate in a separator with a low polarity. Also, the difficulty of the impregnation may also reduce the discharge capacity in the case that the first solvent is used with more than 80 % by volume. Additionally, as set forth in the enclosed Declaration, there was no suggestion in the prior art that such ratios would lead to such an improvement, and Simon et al. does not suggest that such a result would occur.

As such, it is respectfully requested that, in consideration of the arguments submitted in the Amendment filed September 8, 2003 and in view of the facts presented in the enclosed Declaration under Rule 132, Simon et al. does not disclose or suggest the invention recited in claim 4.

For similar reasons, it is respectfully submitted that Simon et al. does not disclose or suggest the invention recited in claim 11 and 12.

Claims 5-9 and 13, 16-21 are deemed patentable due at least to their depending from corresponding claims 2, 12 and 14.

In the Office Action at page 3, the Examiner rejects claims 1-3 and 9-15 under 35 U.S.C. §102(b) in view of Skotheim et al. (U.S. Patent No. 5,961,672). This rejection is respectfully traversed and reconsideration is requested for reasons provided in the Amendment filed September 8, 2003, which is incorporated herein by reference.

Further, while Example 4 of Skotheim et al. appears to suggest an electrolyte having 1, 3-dioxolane, diglyme, sulfolane, and dimethoxyethane, Skotheim et al. does not disclose or suggest an electrolyte with first and second solvents, where either "said first solvent is at least one selected from a group consisting of methanol, hexamethyl phosphoramidate, ethanol, and

isopropanol” as recited in claim 2, or “said second solvent is at least one selected from a group consisting of methylethyl ketone, pyridine, methyl formate, n-propyl acetate, ethyl ether, methylethyl carbonate, toluene, fluorotoluene, benzene, fluorobenzene, p-dioxane, and cyclohexane” as recited in claim 3. As such, it is respectfully submitted that Skotheim et al. does not disclose or suggest the invention recited in claims 2 and 3.

It is further respectfully submitted that Skotheim et al. does not disclose or suggest the invention recited in claims 14 and 15 for similar reasons.

As also set forth in the enclosed Declaration, while Skotheim et al. proposes various liquid electrolytes in Examples 3-6, Skotheim et al. suggests using only 10% of sulfolane in a mixed electrolyte with the remainder being classifiable as a second solvent as set forth in Examples 3 and 4.

In contrast, claim 10 recites, among other features, that “the first solvent is roughly between 20% and 40 % by weight of the electrolyte, and the second solvent is roughly between 80 % and about 60 % by weight of the electrolyte” as recited in claim 10.

As similarly noted above with regard to the rejection of claim 4 in view of Simon et al., there is no suggestion in the prior art or Skotheim et al. that the ratio should otherwise be changed, or that such a change in the ratio would be beneficial. In contrast, as shown in the enclosed Declaration, an electrolyte having the recited range produced results not expected in the prior art or in Skotheim et al.

As such, it is respectfully requested that, in consideration of the arguments submitted in the Amendment filed September 8, 2003 and in view of the facts presented in the enclosed Declaration under Rule 132, Skotheim et al. does not disclose or suggest the invention recited in claim 10. It is further respectfully submitted that Skotheim et al. does not disclose or suggest the invention recited in claims 11 and 12 for similar reasons.

Claims 9 and 13 are deemed patentable due at least to their depending from corresponding claims 2 and 12.

In the Office Action at pages 3-4, the Examiner rejects claims 1-3, 8, and 10-15 under 35 U.S.C. §102(b) in view of Dahn et al. (U.S. Patent No. 5,041,347). This rejection is respectfully traversed and reconsideration is requested for reasons provided in the Amendment filed September 8, 2003, which is incorporated herein by reference.

While col. 10, lines 25-39 of Dahn et al. appear to suggest an electrolyte having mixtures of propylene carbonate and ethylene carbonate and mixtures of 2-methyltetrahydrofuran with propylene carbonate and/or ethylene carbonate, Dahn et al. does not disclose or suggest an electrolyte with first and second solvents, where either “said first solvent is at least one selected

from a group consisting of methanol, hexamethyl phosphoramidate, ethanol, and isopropanol" as recited in claim 2, or "said second solvent is at least one selected from a group consisting of methylethyl ketone, pyridine, methyl formate, n-propyl acetate, ethyl ether, methylethyl carbonate, toluene, fluorotoluene, benzene, fluorobenzene, p-dioxane, and cyclohexane" as recited in claim 3. As such, it is respectfully submitted that Dahn et al. does not disclose or suggest the invention recited in claims 2 and 3. It is further respectfully submitted that Dahn et al. does not disclose or suggest the invention recited in claims 14 and 15 for similar reasons.

Additionally and as also set forth in the enclosed Declaration, while Dahn et al. generally proposes various electrolytes in col. 10, lines 25-44, Dahn et al. does not set forth any specific combinations for these electrolytes.

In contrast, claim 10 recites, among other features, that "the first solvent is roughly between 20% and 40 % by weight of the electrolyte, and the second solvent is roughly between 80 % and about 60 % by weight of the electrolyte."

In contrast, as set forth in the enclosed Declaration and discussed above in relation to the rejection of claim 4 in view of Simon et al., the relative amounts of solvents in the electrolyte has an effect on the cycle life characteristics and initial discharge capacities of the resulting battery. Moreover, as set forth in the enclosed Declaration, Dahn et al. does not suggest a range in which to combine any such solvents. Further, neither Dahn et al. nor the prior art otherwise suggest an advantage exists where the range of the solvents corresponds to the recited range in claim 10. Lastly, the effect of using the recited ranges is an improvement in both cycle life characteristics and initial discharge capacities that was unexpected and not suggested in the prior art.

As such, it is respectfully requested that, in consideration of the arguments submitted in the Amendment filed September 8, 2003 and in view of the facts presented in the enclosed Declaration under Rule 132, Dahn et al. does not disclose or suggest the invention recited in claim 10. It is further respectfully submitted that Dahn et al. does not disclose or suggest the invention recited in claims 11 and 12 for similar reasons.

Claims 8 and 13 are deemed patentable due at least to their depending from corresponding claims 2 and 12.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, it is respectfully submitted that all pending claims patentably distinguish over the prior art. Thus,

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there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any additional fees associated with the filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

By: 
James G. McEwen
Registration No. 41,983

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501

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